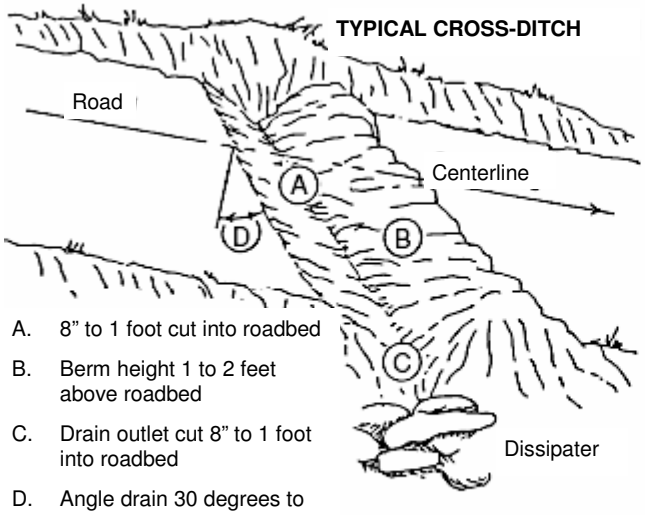
CROSS-DITCHES

IDAHO DEPARTMENT OF LANDS

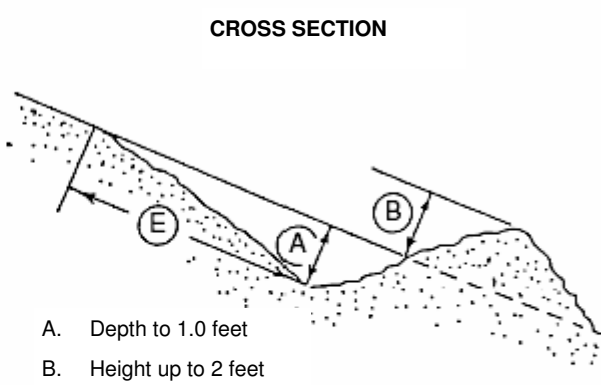
State Forester Forum

Cross-ditches (waterbars) are constructed on roads, skid trails, and landings to prevent rills and gullies from forming and prevent sediment from getting into streams. The goal is to move the water across the road or trail, not down, to places where it will be absorbed into the roadside vegetation and infiltrated into the soil, and to avoid direct sediment delivery to streams and water courses.

Cross-ditches control the volume and velocity of water moving over a road or trail surface. The typical crossditch is illustrated below.



A. 8" to 1 foot cut into roadbed
B. Berm height 1 to 2 feet above roadbed
C. Drain outlet cut 8" to 1 foot into roadbed
D. Angle drain 30 degrees to 45 degrees downgrade



A. Depth to 1.0 feet
B. Height up to 2 feet
C. 2.5 feet to 4 feet

NOTE: On roads where periodic vehicle travel is planned, the combined height of A + compacted B should not exceed 8—12 feet

Placement of cross-ditches is critical for their effectiveness. Cross-ditches should be placed above sections of steep grades to prevent water from building up and increasing in velocity on the steep grades. They are placed above intersections of roads, skid trails, and landings. Cross-ditches placed in swales, gullies, or low areas function as dams and should be avoided.

Cross-ditches should be cut into the soil at least 8 inches and have a berm of at least 12 inches on the downhill side. The alignment should be at an angle of 30 to 45 degrees downhill across the road to the fill slope. They should be firmly tied into the cut slope. The outlet should be open and free flowing onto a stable area. Runoff should be dissipated by rocks, slash, vegetation, or less erodible material, particularly on fills.

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Whenever possible, cross-ditches should be constructed from the bottom to the top of the grade on roads and trails. This is done to avoid driving over the structure and flattening the berm before it can settle and firm up. Driving over new soft or wet cross-ditches and the berms is the main cause of ditch failure.

Recommended Cross-ditch Spacing Distance for Roads and Trails		
Grade of Road or Trail (%)	**Unstable Soils High Erosion Hazard**	**Stable Soils Low Erosion Hazard**
< 15 %	150 feet	300 feet
15 - 30 %	100 feet	200 feet
30 - 45 %	50 feet	100 feet
> 45 %	30 feet	50 feet

FOR MORE INFORMATION CONTACT ANY IDAHO DEPARTMENT OF LANDS PRIVATE FORESTRY SPECIALIST

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Pend Oreille Lake	Sandpoint	(208) 263-5104
Kootenai Valley	Bonners Ferry	(208) 267-5577
St Joe	St Maries	(208) 245-4551
Cataldo	Kingston	(208) 682-4611
Clearwater	Orofino	(208) 467-4587
Craig Mountain	Craigmont	(208) 924-5571
Maggie Creek	Kamiah	(208) 935-2141
Ponderosa	Deary	(208) 877-1121
Payette Lakes	McCall	(208) 634-7125
Southwest	Boise	(208) 334-3488
South Central	Gooding	(208) 934-5606
Eastern Idaho	Idaho Falls	(208) 525-7167
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